

In the Claims

Claims 1 – 18 (Cancelled)

19. (Currently Amended) An exploration device to monitor the penetration of an instrument in an anatomic structure comprising:

at least two electrodes;

a source of voltage supplying the at least two electrodes;

a means for measuring impedance of the anatomic structure between the electrodes;

a means of angular location formed by at least one electrode punctually coinciding with a peripheral surface of the penetration instrument, the coinciding surface of the electrode having a position set off from a longitudinal axis the instrument; and

means for detecting [[a]] an angular position of the at least one electrode.

20. (Previously Presented) The exploration device according to claim 19, wherein the electrode punctually coincides with a lateral surface of the penetration instrument.

21. (Previously Presented) The exploration device according to claim 19, wherein the electrode punctually coincides with a peripheral surface of a distal end portion of the penetration instrument.

22. (Previously Presented) The exploration device according to claim 19, wherein the coinciding electrode is rotatably movable.

23. (Previously Presented) The exploration device according to claim 22, wherein the coinciding electrode is driven at a speed of rotation so that the electrode sweeps at least 360 degrees per level of drilling of the penetration instrument in the bone structure.

24. (Previously Presented) The exploration device according to claim 19, wherein the

electrodes are a plurality of coinciding angularly spaced fixed electrodes and means for measuring impedance delivers a signal corresponding to each of the electrodes.

25. (Previously Presented) The exploration device according to claim 24, wherein the electrodes are longitudinally and angularly spaced punctual contacts.

26. (Previously Presented) The exploration device according to claim 24, wherein the electrodes are formed of longitudinal strips.

27. (Previously Presented) The exploration device according to claim 24, wherein the electrodes are distributed around the longitudinal axis of the penetration instrument.

28. (Previously Presented) The exploration device according to claim 24, wherein the electrodes are symmetrically arranged with respect to the longitudinal axis of the penetration instrument.

29. (Previously Presented) The exploration device according to claim 24, wherein the electrodes are conducting rods of circular, semi-annular, rectangular and/or triangular section.

30. (Previously Presented) The exploration device according to claim 24, wherein the electrodes are formed by eccentric conducting rods.

31. (Previously Presented) The exploration device according to claim 19, further comprising at least one electrode arranged at a distal end of the penetration instrument.

32. (Previously Presented) The exploration device according to claim 31, wherein two electrodes are arranged at the distal end of the penetration instrument, the electrodes consisting of conducting rods of substantially concentric circular section.

33. (Previously Presented) The exploration device according to claim 19, wherein the means for detecting comprises a visual marking on a handle of the exploration device.

34. (Previously Presented) The exploration device according to claim 19, further

comprising a handle forming the means for detecting.

35. (Previously Presented) The exploration device according to claim 19, further comprising a central channel for passage of an additional instruments.

36. (Currently Amended) An exploration device to monitor the penetration of an instrument in an anatomic structure comprising:

at least two electrodes;

a source of voltage supplying the at least two electrodes;

an impedance measuring device that measures impedance of the anatomic structure between the electrodes;

an angular locator formed by at least one electrode punctually coinciding with a peripheral surface of the penetration instrument, the coinciding surface of the electrode having a position set off from a longitudinal axis the instrument; and

a detector that detects [[a]] an angular position of the at least one electrode.

37. (New) The exploration device according to claim 36, wherein the at least one electrode is surrounded by an insulator and comprises an end that is locally flush with the peripheral surface of the instrument while being offset with respect to the longitudinal axis of the instrument.